TWO TYPES OF ^{137}Cs VERTICAL DISTRIBUTION IN THE BOTTOM SEDIMENTS THE KARA SEA MARGINAL FILTER

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Two anomalous ^{137}Cs zones are identified in the Kara Sea marginal filter. They were formed under the influence of geochemical barriers on the movement of Ob and Yenisei river waters radioactive contamination. Ob zone is characterized by 40-45 Bq/kg values in the surface sediments and more than 100 Bq/kg in some underlying horizons. Set pollution levels are higher in the Yenisei area: plots with the activity of more than 70 Bq/kg are located in the upper layer of sediments and 260 Bq/kg in the lower horizons. Researchers noted differences between vertical distribution of radionuclides in the sediments of the Ob and Yenisei zones, but comparative analysis wasn't carried out. To study the vertical distribution of radiocaesium in the sediments of both areas - 47 columns of precipitation were used with a total of 1342 samples. Distribution of 137Cs to the layers graphs were constructed for each of the columns of the bottom sediments. Sixth degree Polynomial trendline and mean square deviation (R^2) were added to each graph. R^2 is in the range 0,127-0,966 for Ob zone and in the range 0,752-0,978 for Yenisei. Visual analysis of the curves showed that the nature of the vertical distribution of radiocaesium in the columns of the Ob zone differs greatly from its distribution in the columns of the Yenisei area. Averaged graphs were constructed based on the average values of specific activity on the horizons of precipitation of the vertical distribution of radiocaesium in the sediments of both bands and lines of polynomial trend sixth degree were added. The computed R^2 was 0.073 for Ob zone and 0.985 for the Yenisei area. Combined graphs show the differences of vertical distribution of ^{137}Cs. In the lower horizons of the Yenisei area radiocaesium intake was low and uniform. Ob zone fluctuations are 0-30 Bq/kg. In the range of 20-15 cm in the Yenisei area activity increases up to 20 Bq/kg, up to a maximum of 70 Bq/kg at a depth of 5 cm and uniformly decreases to 20 Bq/kg at the surface. In the interval 20-0 cm in the Ob region ^{137}Cs activity ranged from 15 to 25 Bq/kg, the curve of its distribution has a "sawtooth" character, and a polynomial trend is nearly straight. Thus, the spatial position of the Ob and Yenisei zones comparing to their facies zonation is indicative of their direct relationship to the facies conditions estuaries and inner shelf. This shows the similarity of the depositional environment in both areas. On the other hand sharp differences in the vertical distribution of ^{137}Cs indicate that his admission to the Ob area was of "ragged" nature and lower levels of activity, and radiocesium collected in the Yenisei region, did a more "natural", reaching maximum values in the horizons, formed in the 60 years of the twentieth century.